REMARKS

Claims 1, 11, 13, 18, 22 and 23 have been cancelled. Applicants hereby reserve the right to pursue the canceled subject matter in subsequently filed continuing applications. Claims 17, 19 and 20 have been withdrawn by the Examiner. Claims 36 and 41 have been amended to recite "wherein said first polypeptide generates an antibody that specifically binds to a polypeptide having an amino acid sequence consisting of amino acid residues 23 to 298 of SEQ ID NO:76" or " wherein said first polypeptide generates an antibody that specifically binds to the secreted portion of the polypeptide encoded by the HTEEB42 cDNA contained in ATCC Deposit No. 97922." Support for these amendments can be found throughout the specification as filed, for example, at lines 23-28 on page 67, lines 1-2 on page 73 and at lines 15-23 on page 77 of the specification. Thus, no new matter has been added. Claims 17, 19, 20 and 24-65 are currently pending.

I. Information Disclosure Statement

On page 4 of Paper No. 120903 the Examiner states that the Information Disclosure Statement filed with Applicants' response on October 20, 2003 does not comply with 37 CFR §1.97, §1.98 and MPEP §609 because the items listed on the IDS were allegedly missing from the application. Applicants submit that references A-L were, in fact, submitted to the Patent and Trademark Office on October 20, 2003 with Applicants' response, as indicated by the copy of the date-stamped return receipt postcard submitted herewith which lists references A-L and exhibits a date of receipt of October 20, 2003. Nonetheless, Applicants submit herewith an additional copy of each of the references A-L that were listed on the Form PTO/SB/08 submitted by Applicants on October 20, 2003. Applicants request that the Examiner consider the merits of the enclosed references and initial the Form PTO/SB/08 accordingly.

II. Claim rejections under 35 USC §112, first paragraph

A. Written Description

In section 6 on pages 5-6 of Paper No. 120903, claims 11 and 22-26 are rejected for allegedly lacking written description in the specification. Specifically, the Examiner states,

> The specification on page 4 makes referral to the deposit of the sequence contained in ATCC Deposit No. 97922, however, this is insufficient assurance that all of the conditions of 37 CFR 1.801-1.809 have been met, because the specification does not indicate whether the sequence of the invention contained in ATCC Depoist No. 97922 is known and publicly available or can be reproducibly isolated.

See Paper No. 120903, page 5, lines 6-10 of section 6.

At lines 14-15 of section 6 in Paper No. 120903, the Examiner also requests that the specification be amended to disclose the date of deposit and complete name and address of the depository. In addition, claim 11 is rejected for reciting "polypeptide fragments having biological activity" and it is alleged that "the specification is absent data on the claimed protein or its fragments affecting testicular cancer as a treatment." *See* lines 2-3 on page 6 of Paper No. 120903. The Examiner additionally alleges,

> There is no function associated with polynucleotides encoding polypeptides having at least 95% or 90% identity to SEQ ID NO:76, biological activity associated with fragments, allelic variants or homologs. Therefore, the claims must recite a specific, measurable activity such that one can recognize a polypeptide as claimed, or a fragment thereof."

See page 6, lines 13-17 of Paper No. 120903.

Applicants respectfully disagree and traverse this rejection.

Preliminarily, Applicants submit that the Examiner's reasons for rejecting all pending claims as described in section 6 of Paper No. 120903 and addressed above only relate to claims directed to fragments and variants of SEQ ID NO:76 and to claims reciting the ATCC Deposit Number. As such, these rejections do not apply to claims 24-29, directed to the full-length and secreted forms of the protein of SEQ ID NO:76. Applicants, therefore, respectfully request clarification of the status of claims 24-29.

Regarding the rejection of the claims reciting the ATCC Deposit Number or claims depending therefrom (*i.e.,* claims 30-35, 41-45, 51-55, 61-65), Applicants respectfully submit that typically, such concerns are addressed under the enablement prong of 35 U.S.C. §112, first paragraph (see MPEP §2404.1 at 2400-4 and 5). Nevertheless, Applicants submit that the specification clearly states,

> A representative clone containing all or most of the sequence for SEQ ID NO:X was deposited with the American Type Culture Collection ("ATCC"). As shown in Table 1, each clone is identified by a cDNA Clone ID (Identifier) and the ATCC Deposit Number. The ATCC is located at 10801 University Boulevard, Manassas, Virginia 20110-2209, USA. The ATCC deposit was made pursuant to the terms of the Budapest Treaty on the international recognition of the deposit of microorganisms for purposes of patent procedure.

See specification page 4, lines 15-21 (emphasis added). Furthermore, Table 1 of the specification indicates that Gene No. 25 is identified as Clone ID HTEEB42 and was deposited with the ATCC on March 7, 1997 (Deposit No. 97922) and on May 22, 1997 (Deposit No. 209070). In addition, Applicants' representative hereby gives the following assurance by signature below:

Human Genome Sciences, Inc., the assignee of the present application, has deposited biological material under the terms of the Budapest Treaty on the International Recognition of the Deposit of Micro-organisms for the Purposes of Patent Procedure with the following International Depository Authority: American Type Culture Collection (ATCC), 10801 University Boulevard, Manassas, Virginia 20110-2209 (present address). The deposit was made on March 7, 1997 and again on May 22, 1997, accepted by the ATCC, and given ATCC Accession Numbers 97922 and 209070, respectively. In accordance with M.P.E.P. § 2410.01 and 37 C.F.R. § 1.808, assurance is hereby given that all restrictions on the availability to the public of ATCC Accession Numbers 97922 and 209070 will be irrevocably removed upon the grant of a patent based on the instant application, except as permitted under 37 C.F.R. § 1.808(b).

Regarding the rejection of claim 11, Applicants point out that claim 11 has been cancelled, thereby rendering its rejection under 35 U.S.C. § 112, first paragraph, moot.

Regarding the rejection of claims encompassing 90-95% identical variants of SEQ ID NO:76 or ATCC Deposit No. 97922 (*i.e.*, previous claims 36-45), Applicants submit that the test for the written description requirement is whether one skilled in the art could reasonably conclude that the inventor has possession of the claimed invention in the specification as filed. *Vas-Cath Inc. v. Mahurkar*, 935 F.2d 1555, 1563, 19 U.S.P.Q.2d 1111, 1116 (Fed. Cir. 1991); M.P.E.P. § 2163.02. The Federal Circuit recently re-emphasized the well-settled principle of law that "[t]he written description requirement

does not require the applicant 'to describe exactly the subject matter claimed, [instead] the description must clearly allow persons of ordinary skill in the art to recognize that [they] invented what is claimed,'" *Union Oil Co. v. Atlantic Richfield Co.*, 208 F.3d 989, 54 U.S.P.Q.2d 1227 (Fed. Cir. 2000). The Court has emphasized the importance of what the person of ordinary skill in the art would understand from reading the specification, rather than whether the specific embodiments had been explicitly described or exemplified. Indeed, as the court noted, "the issue is whether one of skill in the art could derive the claimed ranges from the patent's disclosure." *Unocal*, 208 F.3d at 1001 (emphasis added).

In an analysis of written description under 35 U.S.C. § 112, first paragraph, the Examiner bears the initial burden of presenting a *prima facie* case of unpatentability. This burden is only discharged if the Examiner can present evidence or reasons why one skilled in the art would not reasonably conclude that Applicants possessed the subject matter as of the priority date of the present application. *See In re Wertheim*, 541 F.2d 257, 262, 191 U.S.P.Q.2d 90, 96 (C.C.P.A. 1976); M.P.E.P. § 2163.04. In the instant case, Applicants respectfully submit that the Examiner has not met this burden.

Applicants respectfully disagree with the Examiner's assertion that "the claims must recite a specific, measurable activity" and point out that no such prerequisite is required by the MPEP or 35 USC §112. Furthermore, Applicants submit that one skilled in the art would reasonably conclude that Applicants had possession of the polypeptides encompassed by previous claims 36-45 in the present application as filed. Such variants are disclosed throughout the specification, for example, at page 67, lines 23-28. Nonetheless, as discussed above, Applicants submit that amended claims 36-45 now recite, or depend from a claim that recites a specific, measurable activity, that is, to generate an antibody that specifically binds to a polypeptide specified in the claims.

Regarding the rejection of claims to fragments of SEQ ID NO:76 (*i.e.*, claims 46-65), Applicants submit that such fragments are fully supported by the specification as filed, for example, at lines 8-20 on page 76. One skilled in the art could undoubtedly envision every possible polypeptide described in these claims. For example, the skilled artisan could clearly envision each of the polypeptides consisting of 30 or more contiguous amino acid residues of SEQ ID NO:76. Thus, one skilled in the art would reasonably conclude that Applicants had possession of the polypeptides encompassed by rejected claims 46-65 in the present application. Additionally, these claims recite "consisting of"

language and, therefore, should not require a functional limitation.

In view of the above, Applicants submit that the claimed invention is fully described in the specification as originally filed. Applicants, therefore, respectfully request that the rejection of the claims under 35 U.S.C. § 112, first paragraph be reconsidered and withdrawn.

B. Enablement

In section 7 of Paper No. 120903, claims 11 and 22-65 are rejected for allegedly lacking enablement in the specification as filed. Specifically, the Examiner states, "...the specification, while being enabling for the specific sequences (see for example, SEQ ID NO:76), does not reasonably provide enablement for fragments of the claimed sequence having an undisclosed biological activity." *See* the first line of section 7 on page 6 through page 7, line 2 of Paper No. 120903. Additionally, the Examiner asserts,

> the specification does not disclose any particular conditions wherein there is a deficiency, overproduction or altered form of the claimed polypeptides which would result in a specific disease or disorder to be treated with the claimed product. Significant further experimentation would be required of the skilled artisan to identify individuals who would benefit from such a drug, and then to determine a best course of treatment. It is further stated that the polypeptides and antibodies directed to these polypeptides are useful in providing immunological probes for differential identification of the tissues or cell type(s). However, this asserted use is not demonstrated in the specification."

See page 7, line 18 through page 8, line 5.

Finally, on page 8, lines 12-13 it is alleged that "the specification does not provide sufficient guidance/direction regarding the deposit of the claimed sequence at ATCC."

Applicants respectfully disagree and traverse this rejection.

Preliminarily, Applicants submit that the Examiner's reasons for rejecting the claims appear to be directed to claims encompassing variants that are 90-95% identical to SEQ ID NO:76 or ATCC Deposit No. 97922 (*i.e.,* previous claims 36-45), claims to fragments of SEQ ID NO:76 (*i.e.,* claims 46-65), and claims reciting the ATCC Deposit Number or claims depending therefrom (*i.e.,* claims 30-35, 41-45, 51-55, 61-65). *See* the first two lines of section 7 of Paper No. 120903, wherein the Examiner acknowledges that the specification is enabling for the polypeptide of SEQ ID NO:76. Accordingly,

Applicants will address this rejection as it applies to the above listed claims, and respectfully request clarification regarding the status of claims 24-29. Furthermore, Applicants point out that claim 11 has been cancelled, thereby rendering its rejection under 35 U.S.C. § 112, first paragraph, moot.

Applicants additionally submit that to satisfy the enablement requirement, the specification must enable a person of ordinary skill in the art to practice a single use of the claimed polypeptides without undue experimentation. *See, e.g.,* MPEP §2164.01(c). To make a proper enablement rejection, the examiner has the initial burden to establish a reasonable basis to question the enablement provided for the claimed invention. M.P.E.P. §2164.04; *see also, In re Wright*, 999 F.2d 1557, 1561-1562, 27 USPQ2d 1510, 1513 (Fed. Cir. 1993). Applicants respectfully submit that the Examiner has not provided sufficient evidence or a basis to question the enablement provided in the specification for the claimed polypeptides.

Applicants submit that claims 36-65, directed to fragments of SEQ ID NO:76, and variants that are 90-95% identical to SEQ ID NO:76, are fully enabled in the specification as filed. For example, page 72, lines 1-2 and 24-29 of the specification discloses that such fragments can be produced by mutagenesis techniques or by direct synthesis and that the fragments can be used to generate antibodies specific for the polypeptide of SEQ ID NO:76. Methods for generating antibodies against specific polypeptides were well known in the art at the time of filing of the instant application, and are additionally disclosed throughout the specification, for example, at line 5 on page 88 through line 30 on page 92. Additionally, methods for assaying the ability to bind an antibody are known in the art and disclosed in the application, for example, at line 24 of page 77 through line 9, page 78.

The Federal Circuit has held that *making the claimed species and screening them for function is acceptable*, as long as the experimentation is not undue. As in all cases, this is the test: whether it would require undue experimentation to practice the invention – even when a claim might encompass some inoperative embodiments. *See generally, Atlas Powder v. E.I. Du Pont de Nemours & Co.* 750 F.2d 1569, 224 U.S.P.Q. (BNA) 409 (Fed. Cir. 1984). Therefore, it is clearly not *per se* undue to make and test several fragments, particularly when specific guidance was clearly disclosed in the specification coupled with what was known in the art at the time the invention was filed.

sequence consisting of amino acid residues 23 to 298 of SEQ ID NO:76." Claim 41 has been amended in a similar manner. As discussed above, support for these amendments can be found throughout the specification as filed, for example, at lines 23-28 on page 67, lines 1-2 on page 73 and at lines 15-23 on page 77 and Example 10 on page 281 of the specification. At the time the invention was filed, it was *routine* to determine empirically that particular variants of HTEEB42 protein exhibit either the tissue distribution or the *antigenicity* of the parent protein. See page 77, line 26 to page 78, line 9 and page 106, line 15 to page 108, line 20 of the specification. Specifically, such described methods were available, as of the priority date of the instant application, for readily making and identifying numerous altered polynucleotides and polypeptides. These mutations could be readily generated at random, and the nucleotide and encoded amino acid sequences of the mutants could be readily determined.

Regarding the rejection of claims reciting the ATCC Deposit number, Applicants submit that the above assurance by Applicants' representative provides the guidance/direction regarding the ATCC deposit requested by the Examiner. In addition to the above assurances, Applicants submit that the instant specification clearly enables the use of the scope of the claims at, for example, Example 1 on pages 266-269; pages 67-75 and pages 75-78 and at lines 23-28 on page 67, lines 1-2 on page 73 and at lines 15-23 on page 77 and Example 10 on page 281 of the instant specification.

In view of the above, Applicants submit that claims 24-65 are fully enabled by the specification as filed and respectfully request that the rejection under 35 U.S.C. § 112, first paragraph be reconsidered and withdrawn.

Conclusion

Applicants respectfully request that the above-made amendments and remarks be entered and made of record in the file history of the instant application. If there are any fees due in connection with the filing of this paper, please charge the fees to our Deposit Account No. 08-3425. If a fee is required for an extension of time under 37 C.F.R. § 1.136 that is not accounted for above, such an extension is requested and the fee should also be charged to our Deposit Account.

Dated: March 22, 2004

Respectfully submitted,

By _____

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